

REMARKS

At the outset, the Examiner is thanked for the thorough review and consideration of the pending application. The final Office Action dated June 30, 2005 and Advisory Action dated October 14, 2005 have been received and their contents carefully reviewed.

Claims 8-14 are withdrawn in this application. Claims 1-6 and 15-20 are rejected by the Examiner. Claims 1-6 and 8-20 remain pending in this application.

In the Office Action, claims 1-6 are rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent Publication No. 2002/0130324 to Song et al. (hereinafter "Song"). Claims 1-6 are rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent Publication No. 2003/0085404 to Kim et al. (hereinafter "Kim"). Claims 15-20 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,081,308 to Jeong et al. (hereinafter "Jeong").

The rejection of claims 1-6 is respectfully traversed and reconsideration is requested. Claims 1-6 are allowable over the cited references in that each of these claims recites a combination of elements including, for example, "a first metal layer formed from a first metal" and "a heat generated alloy layer formed from an alloy of the first metal and another metal is disposed at an upper portion of the first metal layer." None of the cited references including Song and Kim teaches or suggests at least these features of the claimed invention.

The above claimed invention is directed to a gate conductive lines with two layers. The first layer is of a single metal A. The second layer is an alloy A-B where B is another metal. So the second layer alloy A-B must be an alloy of the first layer metal A.

In rejecting claims 1-6 over Song, the Examiner cites paragraphs 0078, 0079, 0093, and 0111. Paragraph 0078 of Song is directed to various metals and alloys used for a single layer gate wire. In paragraph 0079 Song identifies a gate wire with a lower layer of Al or Al-Nd alloy that corresponds to the first layer A. As the first layer is formed of a first metal the case of the Al-Nd alloy does not apply. Further paragraph 0079 of Song identifies the gate wire with an Mo-W alloy as the second layer. This paragraph then states that Cr, Mo, or a Mo alloy would make a good single layer gate wire structure. Nowhere does this paragraph identify a heat generated alloy layer formed from an alloy of the first metal and another metal. For example, Song does not disclose a first layer with Al and a second layer with Al-Mo, Al-Cr, or any alloy of Al and another metal. In this case the lower layer is Al or Al-Nd and the second layer is Mo-W alloy. The second layer is not an alloy of either Al or Nd.

In paragraph 0093 of Song, a gate wire with a lower layer of chromium and an upper layer of Al or Al alloy is disclosed. In paragraph 0111 of Song, a two layer structure is identified as having a first transparent layer made of a material such as ITO and a second layer made of metals such as Mo, MoW, Cr, Al, Al alloy, or Ta. Again, nowhere do these paragraphs identify a heat generated alloy layer formed from an alloy of the first metal and another metal as described above.

Further, the Examiner in the Response to Arguments section of the Office Action, states that Al alloy includes Mo, W, etc., but nowhere does Song identify any Al alloy other than Al-Nd. Further in the Advisory Action the Examiner states that Song “discloses Cr, Mo or Mo [alloy] being available not only for single-layered structure, but also for double-layered structure along with Al and Al alloy (par. 0079).” The Examiner seems to be stating that Song identifies a first layer of Mo and a second layer of Mo alloy. But this is not the case. The list of Cr, Mo, and Mo alloy are described as one layer along with a second layer of Al or Al-Nd. Paragraph 0078 describes the desire for one layer to have low resistance such as Al or Al alloy with the second layer having good contact characteristics with other materials such as an alloy of Mo-W. So this combined with the express teaching of paragraph 0079 directs one away from a first layer of Mo with a second layer of an Mo alloy. So Song does not teach two layers having a common shared metal as stated by the Examiner. Accordingly, claims 1-6 are allowable over Song.

As the rejection of claims 1-6 over Kim is not addressed in the Advisory action, Applicant assumes that the previous arguments overcome the rejection over Kim.

The rejection of claims 15-20 is respectfully traversed and reconsideration is requested. Claims 15-20 are allowable over the cited references in that each of these claims recites a combination of elements including, for example, “wherein the gate electrode and the gate pad both include a first layer formed of a first metal and a second layer formed of a heat generated alloy of the first metal and a second metal disposed at an entire upper surface of the first layer directly contacting the transparent electrode.” None of the cited references including Jeong teaches or suggests at least this feature of the claimed invention.

The arguments applied above to Song also apply to Jeong as well. While Jeong discloses a dual layer gate electrode, as discussed above, the first layer is of a metal A, and the second layer is of an alloy A-B of metal A.

In Jeong, a gate electrode is disclosed with a first and second layer. (See col. 6, lines 7-21.) The first layer may be Al or an Al-alloy such as Al-Nd or Al-Ta. The second layer may be made from Cr, Ta, Mo, Mo alloy, or Ti. None of these second layers are an alloy of Al, Nd, or Ta that are disclosed as the metal of the first layer. The only alloy identified for the second layer is a Mo alloy, with the alloying metal unidentified. Further in the Advisory Action the Examiner states "Jeong discloses Al or Al alloy 221 -- Al alloy includes Mo, W, etc -- and MoW 222." If one layer the is an Al alloy Al-Mo as put forth by the examiner, the second layer is Mo-W. This combination would be a first metal layer A-B and a second metal layer B-C. This is completely different from the claimed invention that has a first metal layer A and a second alloy layer A-B. Accordingly, claims 15-20 are allowable over Jeong.

Applicants believe the foregoing amendments place the application in condition for allowance and early, favorable action is respectfully solicited.

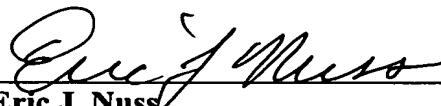
If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call the undersigned attorney at (202) 496-7500 to discuss the steps necessary for placing the application in condition for allowance. All correspondence should continue to be sent to the below-listed address.

If these papers are not considered timely filed by the Patent and Trademark Office, then a petition is hereby made under 37 C.F.R. § 1.136, and any additional fees required under 37 C.F.R. § 1.136 for any necessary extension of time, or any other fees required to complete the filing of this response, may be charged to Deposit Account No. 50-0911. Please credit any overpayment to deposit Account No. 50-0911. *A duplicate copy of this sheet is enclosed.*

The undersigned hereby signs this filing under the authority provided by 37 C.F.R. § 1.34 pending the filing of a Power of Attorney and Statement under 3.37(b) executed by Assignee.

Respectfully submitted,

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